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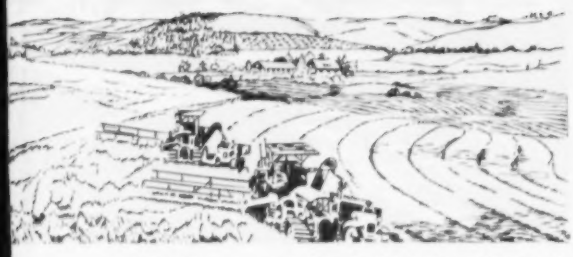

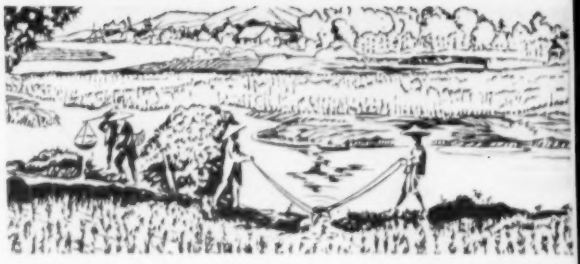

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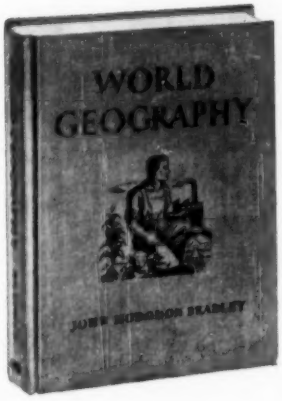

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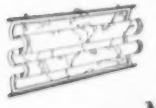

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VOLUME LIV JANUARY 1955 NUMBER 1

BRAZILIAN CAPITALS AND FRONTIERS: PART II

ROBERT S. PLATT
University of Chicago

The Cruls Quadrangle is in the interior state of Goiaz (Fig. 5), a political unit which at present contains 7 per cent of the area and 2 per cent of the population of Brazil; about 1 per cent of the cultivated area, the mineral production, the railway trackage and the

FIG. 5. Brazilian state boundaries, federal capital and proposed new federal district. (Conselho Nacional de Geografia: Mapa do Brasil, Rio de Janeiro, 1945.)

school enrollment; and less than 1 per cent of the manufacturing, the power production, the trade, the banking and the public expenditures for education and culture—figures at an opposite extreme from those of the present capital of Rio de Janeiro.[6]

[6] Quantitative data for Goiaz, as for Rio de Janeiro, are calculated from figures given in Instituto Brasileiro de Geografia e Estatístico: Anuário Estatístico do Brazil, VI (1941-1945), Rio de Janeiro 1946. For both Rio and Goiaz, and for the latter particularly, the facts, ideas and illustrations are mainly from field observation and inquiry in January—March 1947 and in April—May 1948.

Nevertheless after many years of quiescence, a new movement to change the capital to the area of the Cruls Quadrangle has been set going. A new commission has been at work.[7] The purpose 60

Fig. 6. Brazilian Capitals: national, state and municipal. Small dots for the central headquarters of municipalities (equivalent to counties in the United States) are few and far between in sparsely populated parts of the country where municipalities are large, and are closely spaced in densely populated areas. (Conselho Nacional de Geografia: Cartograma da Divisão Municipal do Brazil, Rio de Janeiro, 1945.)

years ago of the plan to change the capital apparently included the ideas of a new capital for a new republic, of a central location in the midst of a national territory more fully occupied and military security at a distance from the sea (Fig. 6).

[7] Commissão de Estudo da Localização da Nova Capital do Brazil, General Djalma Polli Coehlo, Chairman.

These purposes have survived and have been presented again with some modification.[8] Even the idea of military security at a distance from the sea is still included, altho it has obviously lost much of its force in the days of aerial bombing.

The idea of a new capital for a new republic has lost none of its force, altho modified to support a new capital to replace an old outgrown capital now more than ever handicapped by overcrowding, and by the evils of bureaucracy and petty politics, as well as by remnants of imperialism. The negative force of antipathy to Rio is a factor in favor of a new capital. Many people in other cities and outlying regions of Brazil consider Rio to be a hindrance to the nation, interfering with local enterprise, graft ridden and tangled in red tape. Even some inhabitants of Rio think that they would be better off without the government—that Rio would be relieved of congestion and could assume its rightful place as a great center of trade and industry and of tourism.

As for the idea of a new capital at a central location in the national territory, this has been reinforced by the theory that full occupation of the territory is not to be waited for indefinitely but is to be assisted by moving the capital. Since the settlement of the interior seems to lag unduly, perhaps in part because the center of national interest remains on the coast, the government is expected to assist national development by going to the frontier and placing the center of interest there.

In fact, a theory of progressive development has been expressed according to which any capital site is to be considered as a temporary point of focus at a certain stage of national growth. In this theory 50 years may be considered a reasonable time to expect the capital to remain at one site. Accordingly it may be thought to have remained already too long at Rio.

Advocates of the temporary-capital theory seem to favor a site for the next stage not very far inland, well within the frontier of settlement. This would have the advantage of accessibility within the present network of railways and highways and of well-established settlement, from which advances farther inland could be made. Such a site would be sought in the highlands near the boundary between the state of Minas Geraes and the state of São Paulo (Fig. 5).

[8] C. Leite de Castro: "A Mudança da Capital do País à Luz da Ciência Geográfica", in Revista Brasileira de Geografia IX (1947) pp. 279-285; P. de Assis Ribeiro: "Notas á Margem da Transferência da Capital da União," Fundação Brasil Central. Rio de Janeiro, 1947.

These two states, Minas and São Paulo, the most populous and productive members of the federal union, have held the balance of power in the federal government—a balance of purely political power rather than of business interests. Rio is not in either of these states, but is near their borders and, in a way, between them. For the new capital a site is required not within Minas or São Paulo but near and between them. Accordingly advocates of a capital not far from the coast would select a site for a new federal district on land ceded by Minas near the boundary of São Paulo.

Farther inland the state of Goiaz is in a similar position, being near and almost between Minas and São Paulo. A choice here would represent an effort to reach a final solution, to place the capital once and for all at a central point in the national territory, in the area selected originally by the Cruls Commission and having a place in the national imagination (Fig. 5). This is the choice favored by the recent commission and the President and the Congress.

Thus for the next period of Brazilian history and as far into the future as Brazilian plans can reach, the capital planners are looking to the triple watershed.

The three rivers which have their sources here together drain most of the area of Brazil. This suggests waterways leading out in three directions to reach most of the country. Actually the headwater streams are of no use for transportation and the navigable lower courses are far away. A more significant fact for transportation is the position of the triple divide as a meeting place of ridge roads following the watersheds between streams. These overland trails have long been used by ox carts as the nearest approach to a national system of land travel, with the triple divide as the nearest approach to a national center (Fig. 4, see December issue).

The local conditions in this area are attractive for urban development. The climate is pleasant with no season so unfavorable as the summer in Rio. Here, at an elevation of about 4,000 feet, (Fig. 7) the summer is warm with enough rain for plant growth, never oppressively hot and humid. The winter is cool and bright, never frosty except on a few high summits.

The land is beautifully rolling, with broad smooth uplands suitable for a city. Most of the uplands are grass-covered with scattered trees; most of the valleys are wooded. In some limited areas open grassland extends over both hills and valleys, and in

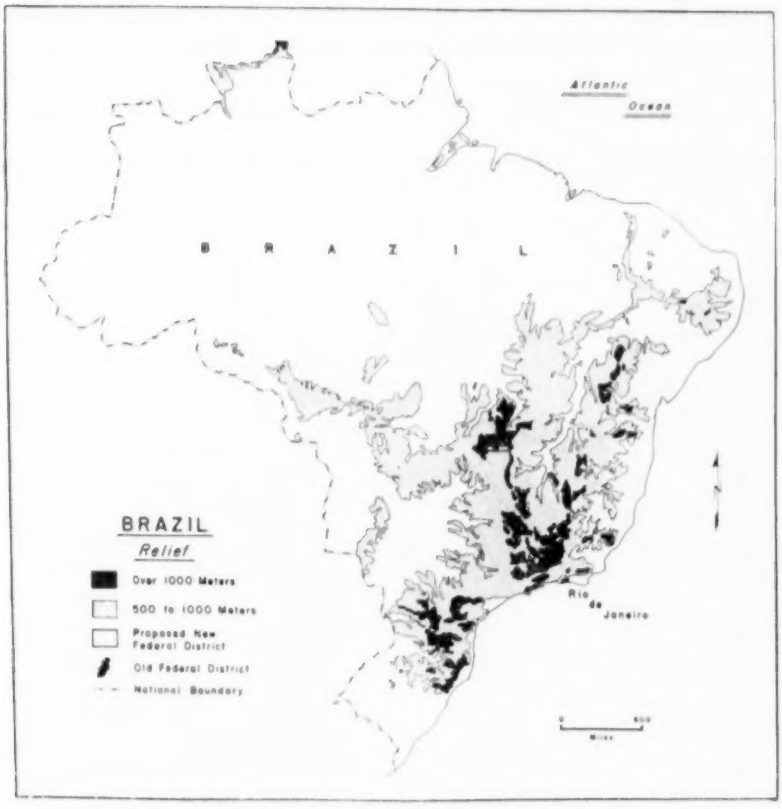

FIG. 7. The Brazilian Highlands, showing the Cruls Quadrangle in an area of greater elevation than any other so far from the coast. (Conselho Nacional de Geografia: Mapa do Brasil, 1945.)

some others forests cover both hills and valleys. But these are exceptional as compared with the widespread occurrence of grassy or bushy uplands (campo limpio or cerrado) and wooded valleys.*

The area is near the frontier of settlement. In some respects it lies within the present frontier and in some respects beyond it. The frontier is in fact a complex phenomenon: the frontiers of Indian subjugation, gold mining and cattle ranching far beyond and the frontier of agriculture still behind (Fig. 8).

*For more data see: L. Waibel: "Vegetation and Land Use in the Planalto Central of Brazil" in Geographical Review, XXXVIII (1948), pp. 529-554.

The frontier of Indian slave catching and gold mining reached and passed this area in the 18th Century. Small Indian tribal groups still exist in Goiaz, carrying on their own way of life with only slight modifications but in peaceful contact with the national

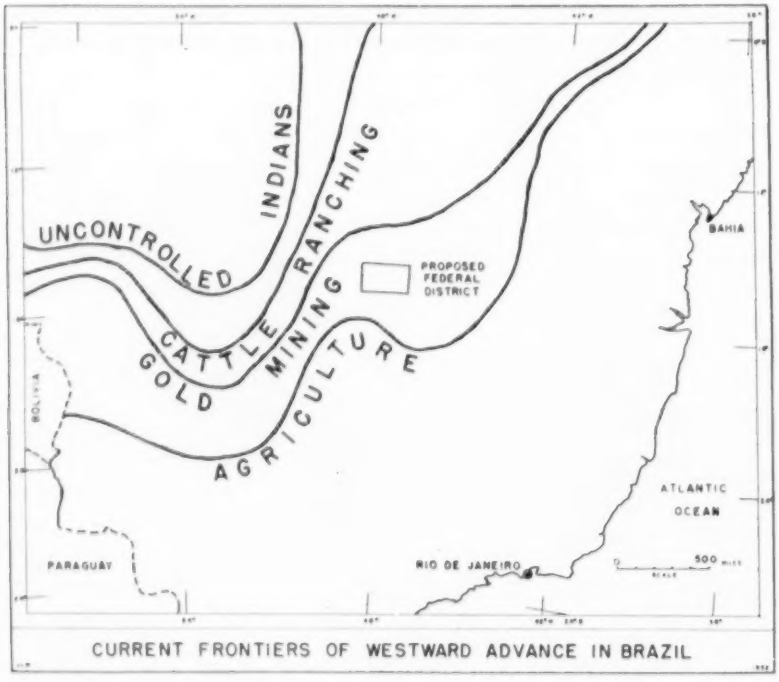

Fig. 8. Brazilian frontiers in this generation. Agriculture has moved nearer to the "Proposed Federal District," beyond the line shown. (Data from "Fundacão Brasil Central" in Observador Econômico e Financeiro, Rio de Janeiro, 1945; B. Brandt: "Geografia Cultural do Brasil," Rio de Janeiro, 1945; L. Lopes: "Memoria sôbre a Mudança do Distrito Federal," Belo Horizonte, 1946.)

Brazilian way of life. They are mainly far from the watershed, down on the Amazon slope in the western and northern parts of the state, particularly along the Araguaia River. Wild Indians, hostile to national contacts, have taken refuge in hiding places beyond the Araguaia, in the state of Mato Grosso. There are no Indian tribal groups near the new capital site, but some people in the vicinity have Indian blood and some preserve Indian traditions.

For example, an old woman in a farm household uses Indian domestic skills and tells a story of her mother's capture as a slave by lasso near this place.

The gold miners left more tangible evidence than the slave catchers of their passage here. The old frontier of mining settlement apparently included the whole highland area of gold bearing rocks in Goiaz and Mato Grosso as far as the Amazon lowlands. Abandoned placer mining works are fairly common, along some

FIG. 9. Church of Corumbá da Goiaz, an Eighteenth Century gold mining town in the Cruls Quadrangle. View eastward across valley, February 1947.

streams; and the washing of gold from gravel is carried on even now, intermittently, on a small scale in a few places. More conspicuous are the old mining towns which still survive, with marks of the past in their architecture and in their traditions, altho their present livelihood is from other sources (Fig. 9). These places include Corumbá de Goiaz and Pirenopolis, both at the margin of the Cruls Quadrangle, Jaraguá a few miles farther west and the city of Goiaz, former capital of the state (Fig. 10).

Thus the state of Goiaz came into being as a constituent community of the Brazilian nation and has a long tradition of estab-

lished occupance. Gold mining was accompanied and followed by cattle raising and this continues as the most widespread interest in the Cruls Quadrangle and the state.

Goiaz has 8 per cent of the cattle in Brazil, a slightly larger

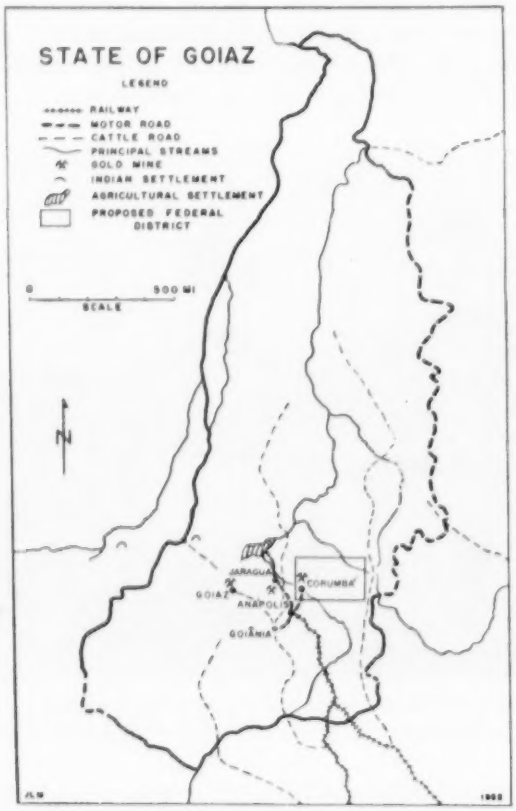

Fig. 10. State of Goiaz. Indian settlements, old mining towns, cattle trails, railway, highways, federal agricultural colony, state capital (Goiânia) and Cruls Quadrangle. (Inspetoria Federal das Estradas: Mapa da Viação dos Estados de Goiaz e Maranhão, São Paulo, 1939.

share per square mile than the average for the country, and a much larger share per capita of population than the average for the country. Most of the land is divided into ranches, originally large, but now subdivided in many cases by inheritance into small pieces of property. Cattle find poor grass pasture on the uplands and good

pasture on valley slopes. Beyond the reach of railway and motor-roads, ranches are isolated and almost self-sufficient units, sending a small herd of cattle southward toward the market every year, receiving a few supplies by ox cart, producing most of their own food supply in small valley clearings (Fig. 11), and even producing clothing from their own cotton on hand looms, and farm and household implements from wood, clay and stone.

In the economy of Brazil cattle can be driven overland two or

FIG. 11. Ranch cattle in corral, Fazenda Vedrinha, Cruls Quadrangle. Ranch owner (right) with Brazilian visitors in corral. Corn in clearing in right middle distance; upland pasture in left background. View northwestward, February 1947.

three hundred miles to reach the market. Accordingly the frontier of ranching is far north in Goiaz at the edge of the Amazon lowland forests (Fig. 8). Regular cattle roads extend southward to Minas Geraes and São Paulo (Fig. 10). One major focus is at Formosa, an old town near the eastern end of the Cruls Quadrangle, another at Anapolis, a new commercial center near the western end of the Quadrangle.

Whereas cattle can reach the market without benefit of modern transportation facilities, agricultural products can move economically only a few miles except by railway or motor truck. Ox carts

may travel for weeks or months carrying such valuable products as hides and skins to the market, and salt back to the ranches but common farm crops cannot stand the cost of such expensive transportation in market competition. Accordingly the frontier of farm settlement waits upon the advance of railways and motor roads. A few years ago a railway reached northward into Goiaz as far as Anapolis, and since then a highway has been pushed on northwestward a hundred miles thru Jaraguá to the Rio das Almas, an Amazonian tributary (Fig. 10).

This is the signal for an advance of the frontier of farm settle-

Fig. 12. Highway thru cleared farmland on slopes and uncleared forest on ridge top in federal agricultural colony, Goiaz. Corn, rice, cassava and cotton in fields; farmhouses of temporary type. View northward, February, 1947.

ment. Accordingly a vigorously growing salient of the frontier now appears in upland country bordering the Rio das Almas. The land is rolling or hilly, the soil is fertile, the natural vegetation is a dense forest of tall trees, mainly broad-leaved evergreens.

The Colónia Agrícola Nacional de Goiaz in this area is a government project of land settlement (Fig. 10). Several thousand settlers have taken up land, each receiving 100 hectares. Clearing is laborious, by hand, but the settlers are mostly Brazilian farmers accustomed to hard work, and the labor has been quickly repaid by abundant crops. Upland rice is the chief crop for export; corn and

cotton are grown for supply, and coffee is started as the main staple for the future (Fig. 12).

In the vicinity of the government project, private projects have been started under a system apparently no less promising for all concerned: pioneer land holders have laid out plantations and have grub-staked settlers too poor to take up free land in the Colonia and equip and maintain themselves while waiting for a crop. Land which in 1947 was uninhabited forest is occupied now (1951) by 3,000 farm families who have cleared land, harvested

FIG. 13. Settlers at farm house in new farm clearing, Amisade. Rice threshing tower at left. View westward, April, 1948.

subsistence crops, and planted more than 3,000,000 coffee bushes on a well-planned and fair share-crop basis. Among the new coffee planters are both Brazilians and foreigners, including a few enterprising Americans (Fig. 13). Predictions point to an impending shift of the Brazilian coffee production center from São Paulo to Goiaz.

There is every aspect of a vigorous new frontier. Public services and private enterprises are booming. Road building is followed by heavy truck traffic. Towns are springing up either planned or unplanned. In the non-governmental project area Joanapolis is a planned center for the community, with retail stores, professional

services, social institutions and farm-marketing agencies. In the older government colony Ceres is a town of about 2,000 buildings with more than a hundred stores, banks, schools, churches, hospitals, cinemas, bars, rice mills, sawmills, brick kilns and a hydroelectric plant.

On a larger scale, the city of Anapolis, at rail head, has become the business center of the area, having a population of nearly 20,000, and paved streets, hotel, bank and office buildings of steel construction, a textile mill and other factories and a score of rice and coffee processing plants (Fig. 14).[10]

Fig. 14. Main business street, bank building, city of Anapolis. View northward. May, 1948 (before paving).

Meanwhile the new state capital, Goiânia, grew from a ranch to a city of more than 20,000 before the recent completion of a rail connection.[11]

Even the isolated old city of Goiaz, former capital of the state in the days of gold and cattle, has not died after removal of the capital, as predicted by some, but has gained in population and in business activity.

[10] For more data see: R. L. Carmin: "Urban Pattern and Regional Function of Anapolis, Goiaz, Brazil," University of Chicago, 1953.

[11] Conselho Nacional de Geografia: Goiânia, Rio de Janeiro, 1942.

Tentative plans for bringing the national capital to Goiaz have called for a temporary shift of the state capital to Anapolis and use of the state government buildings vacated in Goiânia for the first federal offices to be moved from Rio, before the completion of a new national capital city on a site yet to be selected within the designated federal district.

There are Brazilian forces in favor of a change of capital and others against a change; there are good reasons pro and con. The issue is still unsettled and may remain alive and unsettled for many years. But the Brazilian center of gravity is still in the southeastern littoral facing the Atlantic. The obstacles against a capital change are so great that the project has been called quixotic.

Meanwhile a major objective of the project has been largely accomplished: attention has been drawn to a region of prospective importance in the economy and the life of Brazil. At present it may be said that Goiaz is nothing more than a frontier community, at the ragged end of transportation. At the same time it may also be said that Goiaz is nothing less than a frontier community with all the vigor and vitality which that implies. Probably there is no more forward-looking community in Brazil or elsewhere at the present time, and here if anywhere is a congenial atmosphere for the undertaking of national enterprises small or great.

KEEPING A WEATHER CHART: A FIRST GRADE GEOGRAPHY ACTIVITY

LORENA MITCHELL
Franklin School, Centralia, Illinois

In our classroom, floor space limits our selection of class activities or any type of construction which would require much space. Keeping a weather chart provides an opportunity for individual experience and for the class to act as a unit. We keep a weather chart, usually for the months of March, April and May. This project correlates with our unit "Days and Days." This activity involves observing the weather and the use of symbols to make daily recordings as well as drawing generalizations.

By use of this activity we introduce the following concepts:

There are many kinds of weather.

a. Sun, rain, snow, fog and wind are elements of weather.
b. Weather changes often.
c. People adjust their activities and dress to weather conditions.
d. There are usually definite indications of weather conditions.

The teacher suggests to pupils that they may like to keep a weather chart for the month, and after observation each day they can record the weather. They may want to use simple symbols such as: a sun cut from yellow construction paper and pasted on the chart for sunny days; a colored umbrella cut and pasted on for rainy days; clouds cut from gray paper for cloudy days; a kite for unusually windy days and a snow flake from white paper pasted on the chart for days when it snows.

Each child is given a hectograph copy of the weather chart on which he can keep his own weather observations. In construction of the weather chart, a sheet of oak tag is ruled and numbered to correspond to the particular calendar month to be observed. Below the monthly calendar of large squares appears the outline of the symbols in key form on the left hand side and a small chart on which may be recorded the daily temperature on the right hand side. The children color the symbol outlines in the key. Then each pupil places the correct symbol in the square for the correct date as the days go by. Explanations are made to the children how calendars are constructed, the month of the year, the days of the week, the rotation of the days of the week and how to tell on what day a specific date falls. He may keep holiday and weekend recordings for days he is not in school.

A classroom chart is constructed and becomes the official chart. The children take turns placing the appropriate weather symbol on this chart each day. They also may take turns entering the temperature readings on the chart each day opposite the correct date.

Each day as recordings are made the class may want to discuss: kind of weather; predictions according to observations; whether or not it is a good day to play outside or indoors; fun we can have on each type of day and suitable clothing to be worn on that day.

The class discussion may be correlated with stories, poems, songs, games suitable for certain days.

Children always enjoy climaxing a discussion by expressing

themselves by drawing a picture to represent some type of weather observed.

After we keep our chart for three months, we can go back and compare each month as to how many sunny days for each, how many rainy, cloudy, windy days and how many days we saw it snow. In this way we reach a tentative conclusion as to which month had more sunshine, rain, snow, etc.

HOW'S YOUR HAWAIIAN? A TECHNIQUE IN INTRODUCING A UNIT IN ELEMENTARY SCHOOL GEOGRAPHY

H. PHILLIP BACON
George Peabody College for Teachers

In approaching a new unit in elementary school geography the teacher often becomes discouraged by the problem of introducing the unit. Children quickly tire of beginning the study of every country or region in the same manner. Even while recognizing this fact it is easy to slip into a habit of a standardized approach. Do we always start with a map, with an overview of the land, the climate, the industries, the people, or with some other variation on the theme to be developed? Regardless of how we begin, if we use the same technique, unit by unit in moving thru the year's work, the boys and girls will become bored with their geography and the teacher will experience frustrations of inadequacy.

THE IMPORTANCE OF A FRESH APPROACH

The successful elementary school geography teacher is one who is constantly searching for new methods of presentation. Following the well-trod paths of technique in an approach to a unit may give the teacher a feeling of security, but new visions are granted only to those who are willing to work in the pioneer fringes. This does not mean, of course, that the teacher must flit promiscuously from one technique to another never knowing exactly where she is going or where she will be when she gets there. It does mean that she will be on the lookout for new ideas and that a portion of her preparation time will be spent in developing original methods for use in her own particular teaching situation.

Foreign Languages in Elementary Geography

A technique that has proven successful in teaching geography classes in the fourth, fifth and sixth grades is the introduction to a new country thru the medium of the language of the country. In studying Spain or Latin America, a dash of Spanish gives flavor to the lessons; the same is true in opening new units on France, Germany, Portugal, Italy, or any of the areas one might study in the elementary grades.

When confronted with the possibility of using several languages in teaching a year's work in geography, most elementary school teachers, and college professors too, immediately throw up their hands and run for the door. In reality, however, it is actually a method that is not difficult to utilize and one in which the students and the teacher can learn together.

Several factors make the task of working with a foreign language in the geography lesson rather simple for the teacher and fun for the boys and girls. In the first place, the teacher's objective is not really to teach the language, but merely to present a sample of the language to the students thru the learning of a few easy phrases and perhaps a song or two. Secondly, children have a wonderful facility for learning languages. The truth of this statement is obvious to anyone who has witnessed the rapidity with which a child in a foreign country adapts himself to the new language while his parents may struggle unsuccessfully with it the remainder of their lives.

Some Help for the Teacher

Today the teacher has expert assistance available, even tho she may not be familiar with a language, thru the use of the language records and sets that are found in the film and record collections of many school systems. If the system does not own the necessary records, the teacher may be able to bring about their purchase since the cost is not prohibitive for the smaller language sets, and they are useful not only to the elementary school teachers but to the high school language teacher as well. Some of the children may have records at home in which a folk song is sung in the native language. There are also numerous books available which assure the reader that he can learn "French in Ten Easy Lessons." One may not truly learn French from one of these books but he can learn enough to give his students a sample of the language.

If the problem still seems too great for the teacher to attempt singlehanded, or if records and books are not available, there may be a native of the particular country being studied living in the community who would be happy to come to school to assist the teacher. An elderly gentleman from Mexico once imparted a tremendous interest in his native land to a group of fourth graders by singing some old folk songs in Spanish accompanying himself on a guitar. He helped the children learn one of the songs and it was their favorite thruout the remainder of the year.

A Sample from Hawaii

The Hawaiian language as a medium of introduction to the study of the islands offers an opportunity to present something out of the ordinary. An occasional touch of the exotic in geography is appreciated by even the most unsophisticated elementary school student. Over a period of several years the use of the Hawaiian language has proved to be a highly successful technique in introducing the Hawaiian Islands to the fourth, fifth and sixth grades.

Despite the fact that Hawaiian is spoken by only a few people in the islands today, an understanding of some of the easier rules of pronunciation is of great help since nearly all of the cities, towns and streets have Hawaiian names. Hawaiian is also very similar to the other Polynesian dialects and thus can serve as an introduction to a study of the islands of the Pacific area as a whole.

Most children are immediately fascinated by the language since it has only twelve letters in its alphabet; five vowels (*a, e, i, o* and *u*) and seven consonants (*h, k, l, m, n, p,* and *w*). With the vowels sprinkled liberally thru each word it is an extremely melodious language.

The consonants are pronounced just as in English, while the vowels have the same sound they have in Latin. The vowel sounds are: *a* as in "army," *e* as in "they," *i* as in "machine," *o* as in "no," and *u* as in "too."[1]

The *kumukula* (teacher) can help the *kanes* (boys) and *wahines* (girls) learn a few simple phrases such as: *Pehea œ?* (How are you?) and *Maikai, mahalo* (Fine, thank you.). Everyone will want

[1] Clarice B. Taylor, ed., *All About Hawaii* (Honolulu, 1950), p. 226. This little book is published annually by the *Honolulu Star-Bulletin* and may be purchased by mail for $1.25. It contains a section on the Hawaiian language together with a dictionary of commonly used Hawaiian words and expressions.

to learn to sing *Aloha Oe,* Hawaii's famous song written by Queen Liliuokalani. Many recordings have been made in both English and Hawaiian to help with the words and music.

The two or three days spent in learning a little about the Hawaiian language usually stimulates a considerable interest in the islands themselves and the teacher may then move ahead to the study of the geography of the area.

Conclusion

Some scholars might call this type of language study intellectual dishonesty, but from the standpoint of the elementary school geography teacher it is not dishonest at all. Just as the skilled chef adds a dash of foreign spice to his soup to give it zest, so may the skilled teacher add a dash of foreign language and song to the geography lesson to give it a piquancy it might previously have lacked. It offers an opportunity for the students and the teacher to learn together—a graduate school technique on the elementary school level. The simplest of introduction to French, Spanish, or even Hawaiian, may well create an interest in foreign languages, lands and peoples that will be carried on into high school, college and adult life.

JUNIOR HIGH FIELD TRIPS IN GEOGRAPHY*

N. R. Diffenderfer
Nebraska State Teachers College, Kearney

An accepted laboratory method in geography is the field excursion. Regardless of the particular topic to be studied, there are certain basic procedures for organization and planning. Much of the teacher's work precedes the actual trip with the students and involves collecting and imparting information as well as stimulating pupil interest. Trips taken without teacher and student preparation generally serve no teaching purpose.

Organizational steps. Suggested fundamental steps in the organization of a field trip for the home communal area include:

* This short manuscript first appeared in the mimeographed *Bulletin* of the Nebraska Council of Geography Teachers, October, 1953.

1. exploration and selection of topic,
2. gathering of information relative to topic,
3. planning the itinerary,
4. introduction of idea and stimulation of students,
5. informing the students relative to the subject (briefing sessions),
6. the excursion and return, and
7. review.

Selection of a topic. Nebraska is an agricultural state, but this does not infer that all topics selected need be agricultural. The urban field trip, with emphasis of industrial location and land use is a valuable one. The conservation philosophy, advocating intelligent use of resources, can be applied to many other subject-matter courses studied in our schools, i.e., social studies, physical sciences, health, vocational education and others. In geography we are concerned largely with the reciprocal relationships between people and their natural surroundings. Regardless of location and site of your school, field trips can be conducted and students can benefit from these experiences.

Some suggested topics are listed, and it is possible that one or more of these can be integrated. No attempt is made to exhaust the possibilities.

range control	soil drainage
soil erosion	tire manufacturing
overgrazing	sugar refining
quarrying	contouring
petroleum	terracing
natural gas	orcharding
pasture rotation	wild life control
urban land use	river terraces and floodplains

Preparation. After the topic has been chosen, it is necessary that the teacher inform himself of the facts and problems by reading, visiting and observing in and around the community. It is desirable at times to consult and enlist the aid of persons in the community who are specialists, i.e., conservation agent, plant manager, petroleum geologist. In most cases they will be both cooperative and helpful.

The itinerary is usually governed by the subject and the means of transportation. If your school has busses or automobiles that

can be used, you are fortunate, but a walking tour is just as good. A decision here rests on you and your facilities. Plan a tentative route and go over the itinerary alone. At this point you will probably modify your trip to conserve time and to include all things you wish to observe. Now you are aware of the phenomena that will be seen and any problems or remedies existing. You are ready to prepare the list of points which you wish the students to learn while on the trip (lesson plan).

The field trip is a method of dynamic learning and appeals to students. Students are interested in information that pertains to them. How fortunate that conservation is more than a disciplinary subject! Visual aids, i.e., films, pictures, demonstrations, models are excellent tools when used with the customary verbal introductions. The time element is especially important. Do not allow too much time to lapse between the introduction, the classroom preparation and the trip.

The class should be informed of the details of the planned itinerary which includes the route and the phenomena that will be observed. The teacher and students planning together can compile a list of items to be noted and questions to be answered from observations. The teacher will help in keeping important factors before the class during the trip.

Trip and follow-up. Students should take notes at various interest points. Time must be allowed for explanation of questions that interested students will ask. It is not desirable to provide a question list for the student until the review stage.

The next school day is opportune for all summarization efforts. This can be accomplished by general discussion, testing, reviewing the visual materials or demonstrations. It is important that a follow-up take place thru any of the suggested ways or their combination.

The Forty-first Annual Council of the National Council of Geography Teachers will meet in Indianapolis, Indiana, November 25 and 26, 1955.

THE UNIQUE CHANGE IN SCHOOL GEOGRAPHY

LORRIN G. KENNAMER, JR.
East Texas State Teachers College

In 1907 David Gibbs wrote: "Geography now stands as the first of the natural sciences in high schools in number of pupils studying it."[1] Other writers such as William Morris Davis and Ralph S. Tarr also commented on the widespread occurrence of geography in the high schools near the turn of this century. However, today we note that geography is not the first of the natural sciences studied in our secondary schools and when it is found in the curriculum at all it is generally there as a social science. Therefore, geography after becoming very important as a physical science in the school curriculum, had a rapid decline in this role, and, then, reappeared in the school curriculum as a social science. Even prior to the occurrence of physical geography in the schools, the school geography was looked upon as neither a physical science nor as a social science but as a descriptive study. No other subject area has had such a unique change in the development of our school curriculum.

GEOGRAPHY AS A DESCRIPTIVE STUDY

Until approximately the 1850's, school geography consisted of a description of the earth, giving statistics of location, area, population, government, products and social conditions of countries. Only the great natural features were mentioned, such as mountains, rivers and arms of the sea. The textbooks of Jedidiah Morse were typical examples. The material was unorganized and unscientific. The texts were encyclopedic and were meant to be memorized. The texts presented those facts of geography which the adult author thought school children ought to learn, irrespective of what interest the children could be expected to have. Altho phrased in fairly simple language, the ideas too often involved general concepts of the earth such as adults acquire only by years of experience.[2] Educational historians have called the teaching of this type of school geography "dictionary-encyclopedic." The assign-study-recite procedure worked well with this type of subject matter.

From 1850 to the introduction of Guyot's ideas in this country

[1] David Gibbs, "The Pedagogy of Geography," *Pedagogical Seminary*, XIV (1907), 62.

[2] R. H. Whitbeck, "Traditional Geography and the Present Trend," JOURNAL OF GEOGRAPHY, XXIII (February, 1924), 59.

in 1873, the descriptive geography continued. Descriptions of the more unusual and spectacular phenomena of the earth, such as volcanoes, earthquakes, geysers, caverns, remarkable animals, etc., appealed to the sense of wonder and awe. There was little or no attempt at scientific explanation.[3] The atlas type of geography prevailed, thus placing a new value upon the use of maps. Locational geography was still in the forefront and marked by an excess of emphasis.[4]

Geography as a Physical Science

The work of Arnold Guyot ushered in a new stage in school geography after 1873. This change in school geography from a descriptive basis to a causal basis was part of the development of the natural sciences after the mid-nineteenth century. However, prior to the widespread knowledge of the doctrine of evolution the answers and explanations of physical features were sought in teleological philosophy. Guyot incorporated in his texts the work of the European geographers, Carl Ritter and Alexander Von Humboldt. Guyot's style was formal, stiff, and produced in the student's mind the impression that physical geography dealt only with the remote and had nothing to do with the land and sky of the home area.[5] Yet, by the introduction of ideas from Europe and his publication of texts and relief maps, Guyot introduced a new era in school geography in this country.

After the introduction of European ideas by Guyot, school geography began changing from a mass of locations, statistics and descriptions to a physical science. In 1888, Hinman's book, *Eclectic Physical Geography,* presented boldly and for the first time to high school students the doctrines of Darwin and Huxley: heredity, variation, adaptation, environment, selection and evolution. This book was rigidly scientific, even technical in organization and method.

This new viewpoint of school geography based on reasoning in place of memorizing lent itself to an inductive method of teaching rather than a method based on reciting. Pupils were given the principles from geology, physics, astronomy and meteorology and

[3] C. R. Dryer, "A Century of Geographic Education in the United States," *Annals of the Association of American Geographers,* XIV (September, 1924), 130.

[4] A. P. Brigham, "Geographic Education in America," *Smithsonian Report 1919* (United States Government Printing Office, Publication No. 2615, 1921), 495.

[5] Dryer, *op. cit.*, 131.

taught how to use them in an explanation of the landforms of the earth.[6] The causal connection of phenomena was stressed as far as possible rather than the previous emphasis on description and names.

The change in school geography was from a description of commercial and political facts to an emphasis on physical geography. The physical geography was soon called physiography by some, as the causal relations were better understood and recorded.

This growth of physiography was formally aided by the publication in 1895 of the Report of the Conference on Geography to the Committee of Ten of the National Education Association. Physical geography ceased to be merely an information subject and made strong claims for a place alongside physics, chemistry and biology. The Conference on Geography recommended that the first seven years of school geography, entitled "General Elementary Geography," include the earth, its environment and inhabitants, including the elements of astronomy, meteorology, zoology, botany, history, commerce, races, religions and governments.[7] It was recommended that physical geography should be taught as the last geographic course previous to high school, and there should be introduced into the high school course either physiography, geology, or meteorology as the representative of the geographic line of studies.[8] As teachers were to become better trained in geography, physical geography would come to signify a stage of differentiation between that of common geography and that of physiography. Physiography was a higher phase of physical geography and was offered as an elective in high school. Part of the recommended content of physiography as a high school subject was:

> The wasting of the land surfaces, the transportation of the waste to the sea, and its deposition on the marginal sea bottoms; a brief account of the more common minerals and rocks in their relation to wasting; the changes of river action during the progress of land denudation; the relations of lakes, waterfalls, divides and their migration, floodplains, deltas, etc., to the stage of river-development of shore lines. . . . The various kinds of land forms, as plains, plateaus, mountains, volcanoes, should be considered in accordance with the constructional processes involved in their origin and with the system of development above outlined. . . .[9]

[6] W. T. Harris, "Education in the United States," in N. S. Shaler (ed.), *The United States of America* (New York: D. Appleton-Century-Crofts Company, Inc., 1894), 1003.

[7] National Education Association, *Report of the Committee of Ten on Secondary School Studies* (New York: American Book Company, 1894), 204.

[8] *Ibid.*, 205-206.

[9] *Ibid.*, 206.

In such a geography course as defined above the traditional assign-study-recite procedure was ineffective. The method of the physical sciences was that of laboratory work. Phenomena were observed and recorded with relationships being sought. Or in the words of the Conference on Geography,

> . . . first, see; next, reproduce; then study the productions of others, and, meanwhile, ponder and reason on all.[28]

Therefore, this change in the content of school geography revolutionized the methods for teaching it. Outdoor observation, relief maps, models, sand boards, specimens, map-making and map interpretation, were just a few of the additions necessary for classroom equipment and activity. The laboratory method, field work, and the topical recitation were advocated. This was a great change from the enumeration and memorization of locations and products that had been characteristic of descriptive and political geography. However, to a great degree, this necessity for a radical change in methods of teaching the "new" school geography became the outstanding weakness in the program. The teachers were not trained in the new physiography nor in the methods for teaching it.

Decline of Physical Geography

This great change in school geography did not occur without criticism. In fact, the Conference on Geography of the Committee of Ten contained disagreement that resulted in a minority report by one member. The criticism of this one member, Edwin J. Houston, was a preview of the criticism that followed during the next fifteen years.

The creation of the *Journal of School Geography* was for the purpose of aiding the teachers in learning this new geography and the methods for teaching it. The early issues contained many articles with this purpose behind them. William Morris Davis was the central figure in this movement because he was the outstanding geographer on the Committee of Ten, the outstanding physiographer of the times, and the one who first advocated that a journal of school geography was needed. Also, he wrote, with W. H. Snyder, in 1898, a high school text that incorporated the recommendations of the Committee of Ten for geography.

The criticisms followed in increasing degree of intensity after the turn of the century. The literature reveals the following reasons for a decreasing emphasis on physical geography in the school:

[28] *Ibid.*, 211.

1. The high school freshmen were too immature for a course of such nature.[11]

2. Teachers were unprepared in the content and method of teaching it.[12]

3. The course demanded a larger outlay of space, material and equipment than could be mustered.[13]

4. The leaders of the movement were mostly university professors too far removed from the schoolroom situation.[14]

5. There was a failure in the use of natural observations in home study and field trips.[15]

6. On the high school level the physiography, meteorology, and geology could be handled only in an informational manner.[16]

7. The movement slighted the features of the world interesting to human nature and gave more attention to mere mechanical processes.[17]

8. Physical geography was one-sided, it excluded other rich content making the subject barren for children.[18]

9. Too narrow a foundation for school geography.[19]

10. The subject was thrown into the curriculum merely because of the demand for it from outside.[20]

11. School programs were too inflexible to allow for double periods for outdoor observations and study.[21]

The enthusiasm and influence of the leaders were great but the mutterings and dissatisfaction led to modification and gradual displacement. When revised editions of the physical geographies came out the effect of the criticism could be seen. The amount of emphasis upon purely physical matters was greatly reduced.

> The schoolmen of the country, backed up by three or four million children, had decreed that in elementary geography at least, the emphasis does not belong on the physical side.[22]

It was around 1910 that this same movement was seen in high school and college geography—the movement away from the overemphasis of the physical and toward a greater emphasis on the human side. The report of the special committee on high school

[11] Dryer, *op. cit.*, 132.

[12] *Ibid.*

[13] *Ibid.*

[14] *Ibid.*

[15] W. M. Davis, "Need of Geography in the University," *Educational Review*, X (June, 1895), 24.

[16] J. M. Coulter, "Correlation of Science Studies in Secondary Schools," *School Review*, IV (February, 1896), 65.

[17] Harris, *op. cit.*, 1003.

[18] C. A. McMurry, "Geography As A School Subject," *Educational Review*, IX (May, 1895), 457.

[19] *Loc. cit.*

[20] R. S. Tarr, "The Teacher's Outfit in Physical Geography, *School Review*, IV (March, 1896), 161.

[21] Gibbs, *loc. cit.*

[22] R. H. Whitbeck, "Where Shall We Lay the Emphasis in Teaching Geography?" *Education*, XXXI (October, 1910), 109-110.

geography presented to the National Education Association at Denver in 1909 and the report of a similar committee of the Association of American Geographers presented at Boston in December, 1909, indicate this trend.

While the influence of physical geography was decreasing (1900-1910), that of commercial geography was increasing. More attention was being given to problems growing out of human relations. From 1910 thru the next few years, texts appeared which were a combination of physical and commercial geography. This was a type of compromise since physical and economic elements were treated in the same text. The following quotation indicates this increase in commercial geography.

> Commercial geography has a place now in the universities and regional courses are beginning to be more numerous but probably a larger percentage of city high schools offer commercial geography than colleges. The public school demand is that geography shall explain not so much the forms of the earth as the activities of man upon the earth. I believe that it is this demand of the public schools that is now meeting recognition in universities too.[33]

With the decrease in emphasis on physical geography the methods of teaching the school geography changed. No longer could the laboratory method, as the physical sciences employ it, be used. Methods had to adjust to the new content and changed purpose of school geography. The use of the imaginary journey, large topics as type studies and the topical recitation replaced the emphasis in the literature on laboratory work. As R. E. Dodge reported in his Presidential Address to the Association of American Geographers in December, 1915, after reviewing 219 courses of study in addition to replies from superintendents:

> The courses of study indicate that geography is increasing in significance only in business or commercial courses. Excursions and field work are offered in but few schools; laboratory work is noted but rarely.[34]

Dodge further stated that over the country as a whole the geography in high schools was in a rut and generally out of favor and was in a slough of despondency as deep as was the case before the Committee of Ten's Report.

[33] Mark Jefferson, "Geographic Instruction in America," *Proceedings of the Philosophical Society, 1911-12* (Charlottesville: University of Virginia Publications, 1912), 133.

[34] R. E. Dodge, "Some Problems in Geographic Education With Special Reference to Secondary Schools," *Annals of Association of American Geographers*, VI (1916), 13.

GEOGRAPHY AS A SOCIAL SCIENCE

A change in the nature of school geography was again in the air. The thinking was that geography should not be a synonym for physical or commercial geography but that it should be as much a human science as an earth science. Its larger problems should be human problems that involved a study not only of the influencing conditions of the physical environment but also the economic and social conditions. This second "new geography" (the first being the rise of physiography) should lead pupils to appreciate the physical, economic and social causes underlying the consequences seen in human geography. It would be centered around human groups and their problems, thus being a subject of value in the interpretation of human affairs.

R. E. Dodge listed needed improvements for the introduction of this "new" geography.

1. A revolution was needed in school geography as epochal as the one of the 1890's.
2. Texts were needed in human and physical geography that would be scientifically organized and better unified.
3. Since the new geography was a study of people and countries, a school atlas was needed that included the human facts as well as the physical facts.
4. Classroom guides other than text and atlas were necessary.
5. There was a need for teachers of proper training who wanted to teach geography to youths.[25]

This change in school geography was taking place against the background of the First World War. Attention was being focused on peoples abroad and their problems. Schools were adopting projects for groups of pupils to further the war effort. The new geography was adaptable to the newer methods of teaching such as the problem and project methods. The methods used in the social sciences were more pertinent now for school geography than the methods of the physical sciences.

After the war school geography became more and more recognized predominantly as a social science. The question concerning fusion of geography with history into the social studies began to receive more discussion, especially in the late 1920's. According to McAulay, the more rapid period of fusion of geography and history in the social studies was between 1928 and 1938 with a decrease in emphasis between 1938 and 1948 and the practice not appearing universal in 1950.[26]

[25] *Ibid.*, 18.

[26] J. D. McAulay, "Trends in Elementary School Geography 1928-1948" (Unpublished Ph.D. dissertation, Stanford University, 1948), 208.

Thus, school geography has had a unique change in its development in the school curriculum. It has changed from a descriptive study to a physical science to a social science in less than one hundred years in this country. The major problem in geographic education no longer is one of defining the nature of school geography but a problem of introducing and increasing geographic concepts in the public school curriculum.

CONSERVATION AIMS*

MELVIN E. KAZECK
University of North Dakota, Grand Forks

The ultimate goal or purpose of conservation education is to develop a feeling among citizens of personal responsibility toward all resources. When this goal is reached, then Americans will consciously adopt, enforce and support a conservation program in which the resources of our nation will be used without waste for the greatest number of people. But education alone cannot solve the problem of resources waste. By education, the problem can be identified and publicized, but the final solution will always depend upon planned research that is followed by constructive action on the land. These three approaches to the conservation problem can best be visualized as an equilateral triangle which has action on the land as its base with research and education forming the other two sides. Each approach is equally important. Recognition of the problem has little value unless, in theory, a solution can be offered by research; research findings serve no purpose unless they are actually put into practice by action on the land.

Conservation education, if it is to be both useful and successful, must have certain definite aims and objectives which will serve to guide teachers and students toward a better understanding of resource use. Objectives to be meaningful must be understood, and

* The writer wishes to acknowledge his indebtedness to Professor George T. Renner, for some of these ideas in conservation. Conservation was but one of many geographic problems that were discussed during some of our companionable, "graduate student-major professor" conversations at Columbia University.

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to be understood they must be based on certain geographic axioms. First must come the knowledge and recognition that *today's civilization depends entirely upon the resources of the world.* This statement becomes self-evident when analyzed and discussed by well-informed, intelligent individuals. Food, clothing, shelter, transportation, machines, gadgets, luxuries, medicines and roads are but a few examples of our civilization that are but a step removed from original resources materials. In North Dakota our state capitol, our educational institutions and our cities have been built from the soils and grasses of the state. These natural resources are generally considered as inexhaustible by the average farmer. Attention has been centered on production and disposal with little care given the soil that has cared for the state. Our agricultural economy depends upon the soil resources of the state, but little attempt has been made to suggest this fact to our people either by published materials or by educational offerings.

Second must come recognition that *the greatness of the United States has developed from the utilization of its once-great reserve of natural resources.* The United States was endowed with a greater wealth of natural resources than any other nation on earth. We had the largest bank account in the world from which to draw. We developed the famous "American Know How" by using only the cream and wasting much of the rest. A study of the record would lead one to believe that Americans have taken pride in destroying more resources in the past 150 years than all the rest of the world was able to consume in that same period. Almost every honor imaginable has been bestowed on American industry in an attempt to describe its production, but to future generations the twentieth century will more likely be remembered as the period in which Americans spent the geographic resource principal of their nation and still went into debt.

Third, we must recognize that *now is the time to develop a plan for the future use of our resources if we hope to continue our high level of civilization.* We have reached the bottom of the barrel in some of our essential resources and have progressed to the point where we can see the bottom of the barrel in many others. Each year, new substitutes appear on the market while prices for the scarcer materials become higher and higher. The present state of our replaceable resources such as soil and timber is a contradiction to our claim of being an intelligent people. The utilization of our

irreplaceable resources has given our international critics many arguments for predicting the downfall of the American economic system. If the United States is to continue as the greatest nation on earth its people must become intelligent enough to recognize and label the misuse and waste of our resources as crimes against all society. Only by developing a long-range program of resource use and replenishment can the United States expect to remain the leading industrial and political nation.

The general purpose of conservation education is not to frighten persons into believing that all is lost or that our resources have been wasted beyond repair, but rather to develop gradually a realization of the need for a constructive conservation program and a desire to meet this need by the adoption and enforcement of a planned self-perpetuating program of resource use. Conservation education to be successful must be established on definite objectives which can serve as cornerstones on which a long-range program may be constructed. One of the best and most complete lists of objectives ever published was suggested by Professor Renner of Columbia University in his book, *The Conservation of National Resources*. Objectives for a conservation program serve no purpose unless each generation is sensitized to the urgent need for conservation. When Americans realize that the welfare of the nation may be just as important as the personal gain of the individual then a more intelligent resource use program may be expected.

FUNDAMENTALS OF MINERAL CONSERVATION

WALTER H. VOSKUIL
Illinois State Geological Survey

It is a concept of long standing in the study of man's economic behavior that his wants are considerably beyond his present means of satisfying them. People need food and clothing and shelter but do not limit their wants to these elemental necessities. The need for food is accompanied by a want for better food, a wider variety of choice, a more ample supply. This type of expanding want is also true of housing and clothing, but man does not stop there. He likes to travel-luxuriously perhaps; he seeks amusements, education, cultural enjoyments; he will spend a great deal of money in caring for his health or in restoring it if it is impaired. Man wants

much and can satisfy these wants only upon condition that he can produce in abundance and in a wide variety of means, and he soon learns that the use of his hands and muscles alone yields only a small return.

Production is entirely a matter of controlling the physical environment. Production means shifting things about, mixing them, heating them, cutting them, covering them with other stuff that has been shifted about, and so on, and then exchanging them for other things that in their turn have been shifted about.

Let us think for a moment of our predecessors. With an immense amount of hand labor they built irrigation projects, terraced hillsides or changed the courses of rivers to find a water supply. They developed around their projects a highly organized human society, only to find their technological environment too difficult to manage, and so to see their society decay. There were two reasons for this: first, their motive power was almost entirely unaided human effort, usually the labor of slaves; second, they did not have, in all the evidence before us, that knowledge of the properties and behavior of nature that we call science; in particular they did not seem to know how to convert thermal into kinetic energy. To us it seems a miracle that any large society could have survived without a knowledge of heat engines. It was not until the use of metals and fuels became common that one modern engine could do the work of a thousand laborers of ancient Egypt.

In addition to fuel and metals man needs other material, in large quantities, not only to make the things he uses directly, but also to build the housing and machines within which and by means of which his many wants are filled. It is the earth materials (the metals and minerals and fossil fuels imbedded in or otherwise locked in the earth's crust) which are the source materials that, when effectively used, make it possible for his hands and his intellect to be highly productive.

Until he learned how to use earth materials, man was virtually limited to feeding and clothing himself. It was only when he learned the properties of minerals and how these could be turned to his advantage in his efforts to produce things, that man learned not only to produce food supplies more easily and abundantly but had plently of time and energy available for producing other things besides food.

The vast tonnage of minerals used is indicative of their role in

the operation of a productive society. In the United States minerals account for 50 per cent of railroad car loadings, and, if the products made from minerals are included, the tonnage easily rises to 75 per cent.

An economy based upon the effective use of minerals has given the mineral-endowed peoples of the globe not only adequate food and clothing, but also a wide range of material comforts, education, medical services, cultural advantages and leisure.

The "hard core" of the mineral development pattern is the iron ore-fuel grouping. Only a society equipped with power-driven machines can be highly productive, and only iron in its many alloyed forms is a suitable material for the machinery and equipment of a productive society.

The ferro-alloys constitute a group of metals whose primary function is to make of steel a more effective material for economic production. The principal iron alloying metals are chromium, manganese, molybdenum, nickel, titanium, tungsten, and vanadium.

The usefulness of the nonferrous metals is based upon their special properties—the electrical conductivity of copper; the durability, low melting point and electrical properties of lead; and as alloys.

The chemical and industrial minerals perform special functions as insulators, refractories, fluxes, solvents, protective coatings and processors. Ferro-alloys, nonferrous metals and chemical and industrial minerals are frequently shipped great distances and sometimes are gathered from remote quarters of the globe.

Minerals of construction are numerous because of the variety of building requirements. Minerals of construction are, in the main, obtained locally.

The Long-Term Outlook

Beyond the immediate economic conditions in the mineral industries is the long-term outlook for a continued flow of mineral supplies. The heavy draft upon our mineral resources during the war and the necessity of imposing restrictions upon civilians in the free use of minerals has given rise to concern over the adequacy of our mineral supply. The period encompassing World War II and the years immediately following it may mark a turning point in mineral exploitation and utilization. The time when minerals were obtained from rich, favorably placed deposits (the high-grade ores of the Mesabi range, the enormous low-cost oil reservoir of

East Texas, the choice coking coals of strategically located Connellsville) is giving way to an era in which it will be necessary to make use of lower grade materials or less easily accessible sources for coal, petroleum, iron ore, copper, lead and zinc. Some of the more significant changes in the offing are as follows:

Coal. There is a foreseeable depletion of the elite type of coking coal deposits of low-ash and low-sulphur content, and thus a need for exploring the feasibility of obtaining metallurgical coke from hitherto non-coking coals.

Petroleum. The trend has been definitely toward deeper horizons in new drilling, more extended efforts in secondary recovery in old fields, the commercial development of synthetic processes for making liquid fuel out of natural gas, and a distinct possibility that this process may be applied to coal.

Iron ore. The life of the high-grade iron ore supplies in the Lake Superior district is now recognized as limited in duration; and, in anticipation of depletion, alternative sources of ore must be sought. Potentially these are obtainable from the vast tonnages of low-grade ore in the Superior district, or from high-grade ore deposits in Canada, Cuba, Venezuela, Brazil, Sweden, Sierra Leone, Labrador and Chile. Clearly, the steel industry and the nation are faced with the necessity of formulating a policy with respect to ore development—a policy which can effect far-reaching changes in the geographical pattern of the American steel industry.

Depletion of Reserves

The depletion of certain favorably located and high-grade mineral deposits has given rise to a fear of mineral shortage and has tended to obscure the essential nature of mineral resources.

The limiting factor in estimates of mineral resources has been the concept of mineral reserves as known measurable ore bodies, the depletion of which was equivalent to mineral exhaustion. This concept is being replaced by the concept that the elite ores which gave rise to the mining industry and carried it thru its first stages are but a small part of the total reserve; that the reserves of ore of less than elite quality, of mediocre and low rank, are many times the volume of the choice ore bodies. Advances in mineral technology or changes in price bring larger volumes of material into the realm of commercial ore. To maintain a continuous flow of mineral from these lower-rank ores without an undue rise in price is a major problem of mineral technology.

A Program of Conservation

Altho the draft upon our mineral supplies is heavy and may increase in the future, we must not assume that mineral exhaustion is imminent. However, we shall find it necessary to proceed along constructive lines in the economical and efficient use of our mineral supply.

There are three clearly indicated steps necessary to maintain a steady flow of minerals, two of which are the direct concern of the conservationist and the third, altho not augmenting or conserving the original resource itself, has a conservational consequence by increasing the efficiency of resource utilization. These three steps are:

1. The reduction of loss and waste in present mining practices.
2. A program of ore discovery, including discovery and measurement of "sub-ore."
3. A program of technological improvement thru research for greater efficiency of resource utilization.

First in the program of mineral conservation is the reduction of loss and waste. A large part of our mineral production in coal, in oil, in iron ore, to mention only the three leading mineral materials of industry, comes from high-rank favorably located deposits. The factor of low-cost production together with the factor of low-cost assembly of these important materials into the centers of processing and manufacture forms the basis of our highly productive industrial economy. The low-cost deposits of minerals represent only a small part of our total mineral reserve. Nevertheless, at present, mining is concentrated on the richest and most accessible deposits and they are being exhausted at a rate which forecasts an early dependence upon leaner and less accessible ores. We must simply recognize this form of mineral exhaustion and, knowing this to be the case, develop the means by which mineral flow can be maintained from low-grade and less accessible deposits.

In the meantime, the advantages of low-cost production can be extended if every effort is made to mine these beds or ores with a minimum of waste and loss. This is a problem of mining technology and of economics—price and competitive relationships among mining districts. We can, in this discussion, merely indicate the location of the problem and its relationship in prolonging the life of low-cost reserves.

The second cornerstone in mineral conservation is a continued

program of mineral discovery. This program has been successful in the petroleum industry up to the present, altho there are signs that discoveries of the magnitude required for present-day oil consumption are becoming more difficult to find. With waning discovery of mineral outcrops, search must be directed to the less obvious deposits, of which vast numbers must be hidden by the ubiquitous overburden. Every skill of geology must be employed to this end.

The third requirement in mineral conservation is technology. Technology has been termed the "multiplier of our natural resources"; it is the science of technique and includes all innovations in production and trade brought about by science, invention and scientific management. Technology created and is continually transforming modern industrialism; it causes changes and adjustments in our economic, political and social order.

Applied to the utilization of mineral resources, technology is probably the most important factor in extending the life of mineral reserves. It does not, in any way, invalidate the need for the two steps described above. Technology, in itself, is of no avail unless the mineral raw materials are there to be produced. Because there are innumerable ways in which technology aids in increasing mineral production and the usefulness of a mineral after it is mined, we may truly say "technology is a multiplier of mineral resources."

Technological change and improvement in the mineral industry begins with the technique of exploration. The search for mineral deposits, which was originally the adventurous efforts of an individual prospector, is now a project which requires the services of the geologist, geophysicist and geochemist. Closely associated with discovery is the technique of mineral recovery. Technological advances in mining practices today are effecting economies and reducing wastes so that existing mineral deposits may have their usefulness extended thru more complete recovery from the earth.

The utilization of low-grade ores in copper mining is one of the outstanding achievements of the mining industry and an example of what can be done by applying technology to the problem. In the near future, low-grade mineral-bearing deposits not now considered minable will have to be used, and technology must find a way to make these ores economically available. This is particularly true of lead and zinc.

In the realm of mineral processing and preparation, technology

has made great contributions toward expanding the effective use of minerals. The meaning of this can be most effectively demonstrated by an example in petroleum technology and the supply of motor fuel. The automobile ranks high on the list of things the average American chooses to buy, which accounts for the millions of automobiles in use in this country. The growth of automobile use since 1905 required a large quantity of crude petroleum from which gasoline is obtained. So great was the demand that the fear of a shortage of gasoline has been repeatedly expressed. In fact, a shortage of gasoline would surely have occurred if we had had to depend on the refining methods of the early days of the oil industry. This is what has happened since:

1. Original source: Straight-run refining of oil; gasoline yield was about 18 per cent of the crude oil.
2. Cracking process: Processes were developed to make more gasoline by cracking the heavier oil produced in straight-run refining; the result was that gasoline recovery went up from 18 to 50 per cent.
3. Catalytic cracking and hydrogenation: This process makes it possible to convert crude oil entirely into gasoline, but we do not yet need to go that far.
4. Coal gasification and synthesis: This makes it possible to gasify coal and build liquid fuels out of the gas or to convert natural gas into motor fuel at costs that are now almost competitive with that of producing gasoline from crude oil.

Thus technology has in this instance "multiplied" the product from a natural resource and in addition has developed means of bringing hitherto unusable materials into the class of source materials for the widely used motor fuel.

In the future the mineral industry will effect the recovery of more than one mineral product from natural ore. We note the beginning of a process for the recovering of both uranium and fluorine from phosphate rock in the course of processing for phosphatic fertilizers. We may ultimately expect to see a recovery of sulfuric acid from the pyritic by-product of coal mining and a further by-product recovery of iron oxide from this same pyrite. Blast furnace slags may be made to yield manganese. In Europe cement and sulfur are produced as joint products of the calcining of gypsum. One might speculate on the possibilities of recovering potassium, aluminum and sulfur from alunites. These developments or suggestions merely illustrate the direction in which mineral technology will proceed to a more complete recovery of useful elements and products from the raw materials of the earth.

GEOGRAPHY TEXTBOOK EXCHANGE WITH JAPAN

SHANNON MCCUNE
Colgate University, Hamilton, New York

American geography teachers interested in the geography of the world and the activities of geographers thruout the world have many opportunities to be of service to their colleagues. Outlined herein is a project which should have their support.* It was tried on a pilot basis in 1953-54 with good results; it should be expanded and, thru directed effort, be even more effective in the coming year.

Teaching at the University of Tokyo in the fall of 1953 I became oppressed with a serious situation: many of the students wanted and could use American textbooks, but these were priced out of their range. In the second-hand book stores a copy of a standard American text costs from 1500 to 3000 yen—four to eight dollars. The average Tokyo student has roughly 4000 yen—11 dollars—to spend each month on his travel, incidentals, clothes and books; many of the students have much less. Meeting their needs for books for their own personal ownership and use is a real challenge. (Parenthetically it should be noted that Russian geography books are readily available in book stores or can be easily ordered. These sell at the obviously subsidized prize of 150 to 400 yen—30 cents to a dollar; they are sold, not given away, and are attractive to students for their colored maps and pictures.)

In December, 1953, I wrote to a number of American geographers asking for their cooperation in gathering books for exchange with Japanese students. The results were encouraging; by August 1, 2,000 books had arrived and more were on their way. They are being distributed to Japanese students and suitable books are being sent in exchange to American geographers.

This year it is urged that American geographers cooperate on a wide basis in sending books for exchange to Japan. The project is very simple. It is aimed at getting suitable books, not just any books. A list of selected titles desired by Japanese students is given below. Only these or their equivalents should be sent. Naturally, the

* This project was outlined at the conclusion of an address given at the Annual Banquet of the National Council of Geography Teachers, San Francisco, August 20, 1954. It was suggested that it be described in the JOURNAL OF GEOGRAPHY so that many American geography teachers and students could take part in the project.

books should be in good condition—books Japanese students would be proud to own. If books are wrapped in packages of less than 6 pounds 9 ounces (two or three books) and marked "Printed Matter —Gift," they may be mailed with a minimum of red tape. Large quantities of books can be sent more cheaply by freight. American university students often have no further use for their books after their courses are finished; libraries often have surplus books (particularly from reserve book shelves); and teachers frequently have extra copies of standard texts they have received for review purposes. It is these sources of books which should be tapped.

The Asia Foundation, a private American organization which works with private Asian groups and organizations, has volunteered to give financial support where needed. They will defray postage and freight costs when lists of donated books and statements of freight costs are sent to them (105 Market Street, San Francisco 5, California). They have available lists of books needed in fields other than geography, if student groups are willing to put on campus-wide campaigns for book donations.

The geography books should be sent to:

The Textbook Exchange Committee
Institute for Democratic Education
Kokuritsu Kyoiku Kenkyujo
284 Chojamaru Kami-osaki
Shinagawaku, Tokyo
Japan

This committee has volunteered to be the collection and exchange point for universities thru out Japan. They exchange the books for equivalent materials (or about 200 yen to buy suitable books, maps, or atlases). These Japanese materials are then sent to American universities or individuals from whom books have been received. These materials are well selected and will be of great help to American teachers and students seeking to learn about Japan and its problems.

This is a simple project, but one which will be to the mutual benefit of Japanese and American geography students interested in a free search for knowledge thru out the world.

Books Desired by Japanese Geography Students

The following books, in early as well as present editions, or equivalent books prepared in recent times, are suitable for Japanese students' use:

Culture Worlds, J. R. Russell and W. N. Kniffen, Macmillan, 1951.
Economic Geography, C. E. Jones and G. G. Darkenwald, Macmillan, 1954.
Elements of Geography, V. C. Finch and G. T. Trewartha, McGraw-Hill, 1949.
Essentials of Geography, O. W. Freeman and H. F. Raup, McGraw-Hill, 1949.
Fundamentals of Economic Geography, N. A. Bengsten and W. Van Royen, Prentice-Hall, 1950.
Geography of Man, P. E. James and H. V. B. Kline, Ginn, 1949.
Human Geography, C. L. White and G. T. Renner, Appleton-Century-Crofts, 1948.
Introduction to Geography, H. M. Kendall, R. M. Glendinning, and C. H. MacFadden, Harcourt Brace, 1951.
Industrial and Commercial Geography, J. R. Smith and M. O. Phillips, Holt, 1946.
Physical Geography, A. N. Strahler, Wiley, 1950.
World Economic Geography, G. Renner, L. Durand, G. L. White, and W. B. Gibson, Crowell, 1951.

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American Resources, Whitaker and Ackerman, Harcourt Brace, 1951.
Conservation of Natural Resources, G. H. Smith, Wiley, 1950.
Geography of North America, G. L. Miller, A. E. Parkins and B. Hudgins, Wiley, 1954.
Historical Geography of the United States, Ralph H. Brown, Harcourt Brace, 1948.
Readings on the Geography of North America, American Geographical Society, 1953.
The United States and Canada, A. J. Wright, Appleton-Century-Crofts, 1948.

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American Geography: Inventory and Prospect, P. E. James, Editor, Syracuse, 1954.
Nature of Geography, R. Hartshorne, Association of American Geographers.

MIX AND MATCH: A TEACHING DEVICE

DOROTHY LANDON
Rockville, Nebraska

To help teach geography, I have made a device named "Mix and Match."

For this device use a sheet of bristol board 22 x 28 inches. A pastel color that is easy on the eyes makes this more effective. Use the 22 inch edge for the top of the background. Measure 4.5 inches from the top and draw horizontal lines lightly across the board. Space these lines 3.25 inches apart, which divides the board into eight rows.

On these lines draw four half circles 2 inches from the vertical edge and 4 inches apart. A 50-cent piece is a good pattern for the half circles. Cut these half circles with a single edge razor blade. This completes the background.

Use oak tag to make cards 2 x 4 and 2 x 5 inches. On the smaller

cards print plainly and easily read geographic terms, for example, ocean, river, plateau and gulf. On the larger cards print the definition of each.

Slip behind the half circle tabs, the cards with either the terms or definition. (Mix the arrangement from time to time.) Give the other cards to the class and have them match their card with the correct one on the board. Slip this card behind the corresponding tab.

Additional cards of various size and subject matter can be made to suit the needs in your school.

GEOGRAPHICAL PUBLICATIONS

Archie Binns. **Sea Pup.** Little, Brown and Company. Boston, 1954. $2.50.

When Clint Barlow found the Sea Pup, he had no thought of having him for a pet. In fact, he delayed sailing homeward to await the missing seal mother. But Buster, as he called the baby, liked humans and readily adapted himself to the family life.

The thirteen-year-old boy had an absorbing interest in the sea and its creatures and a longing to know more about the vast unexplored resources of the deep. His parents understood these desires and gave him a great deal of freedom to develop his interests.

Mr. Binns gives us an excellent picture of the Puget Sound region in this very interesting story. It would be good supplementary reading for grades 6 to 8.

Adelaide Blouch

Hayes School, Lakewood, Ohio

G. R. Crone. **Maps and Their Makers.** Hutchinson House, London, 1953. 181 pages, seven maps, bibliography including sources containing reproductions, index. $1.30.

This is an excellent book. It is scholarly, brief and written in a style both clear and straightforward. These qualities make it an ideal history of maps for those of us who are primarily geographers—cartographers would perhaps prefer a more extended treatment.

G. R. Crone is Librarian and Map Curator of the Royal Geographical Society.

He suggests that map making basically depends on our essentially instinctive ability to draw sketches of visualizations of things in space; that the "history of cartography is largely that of the increase in the accuracy with which . . . (the) elements of distance and direction are determined and in the comprehensiveness of the map content."

Despite brevity he succeeds in a judicious presentation of maps in their many aspects —as scientific reports, as historical documents, as research tools and as objects of art.

Clarence L. Vinge

Michigan State College

Helen D. Olds. **Sara's Lucky Harvest.** Julian Messner Co., New York, 1953. Illustrated by Paul Valentino. $2.50.

What was Sara's lucky harvest? Why potatoes, of course, for Sara, a ten-year-old girl, lived with her grandparents on a 20-acre farm in Aroostook County, Maine, the heart of the Maine potato country.

Helen Olds has given an excellent description of harvesting potatoes and how the machine age has transformed this harvest from that of the pre-machine days when all agricultural work was done by hand to the present when practically all of it is done by machine.

The author not only describes the harvesting of the potatoes but the marketing of them, some products made from them, and the importance of one crop like potatoes to the economy and well being of our people.

A pet deer adds interest and life to the story of Sara. Peppy, Sara's pet deer, gets lost because of a city boy's thotlessness in removing the red ribbon and bell from Peppy's neck. Luckily along with the harvesting of the potatoes Sara also finds Peppy.

This book, as others in this series, brings out the interrelationship as well as the interdependence of man. It is the working together that makes for success.

The many illustrations by Paul Valentino are sketches in black and white. They are simple but quite descriptive.

Sara's Lucky Harvest should serve well as supplementary reading in natural science for boys and girls in the 3rd, 4th and 5th grades. It might be read to children even younger.

Southside School
Whiting, Indiana

PAULINE SCHLECHTY

W. G. Moore, **A Dictionary of Geography,** Penguin Reference Books, Harmondsworth-Middlesex, 1952, 191 pages, 30 cents.

W. G. Moore, author of *The Soils We Live On* and *The World's Wealth,* has compiled *A Dictionary of Geography* which could be of value to teachers and students of geography and earth science at all levels. The author states that the ". . . book is for everyone . . . who is interested in the world he lives in, in the features and phenomena which are the substance of geography."

From "aa" to "zoogeography" the terms included in this dictionary are of the type that the student may come across in his geographical readings, as well as in lectures. The dictionary includes definitions and descriptions of such commonly used geographical terms as Atmoshere, Cold Front, Fault, Plain and Hill land. In addition, there appear such terms as Adret, Chaparrel, Perihelion Harmattan, Plum Rains and hundreds of others.

A Dictionary of Geography is quite complete, notwithstanding its small size (4½ X 7 inches). The volume is cross referenced in order to aid the reader in obtaining additional, relevent information concerning a consulted item. Its compact size is, however, advantageous in that it may be easily carried in pocket or notebook and thus be available whenever the user wishes its need. The simplicity and clearness of presentation of the included geographical definitions and descriptions, along with many diagrams and photographs combine to make this small book a valuable and much needed addition to geographic literature. An added attraction of this dictionary is its inexpensiveness which places it wthin the range of all students.

The student and teacher alike should find this volume a help, in the authors words, in clarifying and systematizing the reader's knowledge of geography. The author continues to state that "unlike most dictionaries . . . this book encourages the reader to read on."

It might be hoped that such a work as this will be at some future date expanded and published in a more durable form. This volume is limited largely to definitions and explanations of the terms of physical geography. The terms included are generally those of geology, meteorology, climatology, biology, etc. Many terms encountered in economic or cultural geography are omitted, which if included would add immeasurably to the worth of the publication.

Carroll College
Waukesha, Wisconsin Benjamin F. Richason, Jr.

Hammond's **Chalkboard Wall Atlas.** Copyrighted by C. S. Hammond and Company, 1953, New York. Heavy Cardboard Covers. **$24.95.**

This Atlas contains outline maps of the World, the United States and all the continents. It is made of dark green plastic protected cloth, with heavy cardboard cover, spiral hinge and eyelets at top and sides so that it can be hung in any position. Maps are constructed on Polyconic, Lambert's Azimuthal Equal-Area and Polar Projections. Political boundaries. Can be written on with soft chalk and cleaned easily with eraser or damp cloth. Scale is given in both miles and kilometers and varies with the area mapped.

In-service teachers were greatly interested in the Atlas and suggested innumerable ways in which they could use the maps in geography and history classes. It is compact, portable and easily stored. Teachers seeking equipment as described will find Hammond's *Chalk Board Wall Atlas* very satisfactory.

State Teachers College
Valley City, North Dakota Ina Cullom Robertson

George J. Miller, the late Almon E. Parkins and Bert Hudgins. **Geography of North America.** Third Edition. John Wiley and Sons, New York, 1954. xi and 664 pages, selected list of references, 110 maps, 150 graphs, several charts and illustrations, index. **$7.50.**

The Third Edition of *Geography of North America* revised by Professors George J. Miller and Bert Hudgins is a successor to the well-known Miller and Parkins, *Geography of North America* first published in 1928 and revised in 1934. Altho the book has been rewritten to a considerable extent, the organization and chapter headings remained practically unchanged. [The charts, graphs and statistics are generally new. A few of the maps are new.]

The 27 chapters of the book provide a rather complete analysis of the United States, Alaska, Canada, Mexico and Middle America. Preceding Chapter 1 there are five pages of reference material entitled "Selected List of References."

The text is divided into four parts as follows: Part I, North Amrica—the Continent; Part II, the United States and Alaska; Part III, Canada; Part IV, Mexico and Middle America.

The first chapter of Part I treats the continent of North America as a whole. The following 18 chapters which constitute Part II are devoted to the United States and Alaska.

Three or four chapters are generally devoted to each of the four regions into which the United States is divided: 1. The Northeastern States 2. North Central Section 3. The South 4. The West. The first chapter of each section is devoted to a study of the Physiographic Regions. The other chapter headings vary somewhat with the region.

The one chapter devoted to Alaska contains many excellent charts, maps, graphs and illustrations. Five chapters (Part III) treat Canada. The first one makes an analysis of the country as a whole; the other four are devoted respectively to the Maritime

Provinces, The Great Lakes-St. Lawrence Region, The Prairie Plains and the Artic Meadows, and the Pacific Mountain Region. Three chapters (Part IV) are devoted to Mexico and Middle America.

The book is written with clarity; maps are generally well drawn. The graphs (pie, line and bar) represent excellent cartographic work and are very readable. The questions, exercises and problems at the end of each chapter are provocative. The book is written chiefly for students, but it is equally as valuable to laymen who wish to gain a general insight into the geography of North America.

Southern Illinois University
Carbondale FLOYD F. CUNNINGHAM

Maisie Herring. **The Young Traveller in Ireland.** E. P. Dutton and Co., Inc., New York, 1954. $3.00.

This book is a colourful story of travel in Ireland, seen thru the eyes of two American teenagers. It is told by an author who knows and loves her Ireland, but can view it with detached sympathy and balanced judgement. The book is in no sense a textbook, but is a background story book. It gives the true flavour of the place without being erudite or logical; it creates an accurate human atmosphere without destroying the spirit of Irish life by analysis.

There may come a happy time when educational textbooks will be like this book—detailed, exciting, interesting, illogical, incomplete, stimulating—instead of being formal, logical dull complete. *The Young Traveller in Ireland* presents all the material necessary for a good geographical study of Ireland but none of it could be learned by heart, none of it is geography as it stands. It requires the exercise of high grade intellectual thot and contemplation, together with a reordering of the facts and their implications before the geography shines thru. All the generalisations must be drawn by the reader. This story book could, therefore, become the ideal raw material for a truly educative exercise in the field of geography. At our stage in Educational progress it must remain simply an informative book, not a text, and it should be in the reference library of every junior high school.

University of Manitoba NEVILLE V. SCARFE

Loyal Durand, Jr. **World Geography,** Henry Holt and Company, New York, 1954. $5.25.

World Geography should appeal to the college professor who feels that his introductory course is designed for the general student, not just for a few prospective Ph.D.s in geography.

The bulk of the book is contained in 14 chapters, numbered 8 thru 21, in which the physical and cultural elements are cast into a mold of world climatic regions. The first seven chapters deal with landforms and other physical elements systematically. Three final chapters consider minerals, population phenomena and the elements of geography.

World Geography has many praise-worthy features. Its brevity warrants consideration for one-semester courses. Technical terms, a bane to the novice in almost any introductory course, have been minimized. Numerous concepts are well frosted and sneaked into appropriate regional chapters. Devotion of four separate chapters to the dry and mountainous lands of the tropics and middle latitudes is a realistic recognition of latitudinal influences. A folded sheet, conveniently secured near the middle of the text, contains maps of climatic types, natural vegetation, agricultural types and population. The author introduces each chapter by a pertinent sketch. The format is simple and attractive. Commendable summaries conclude most chapters. The numerous photographs are generally lucid and pertinent to chapter content. The author's easy style avoids the stodgy phraseology of too many geography textbooks.

As in any textbook, there are a few things that this reviewer might have approached differently in *World Geography*. The section on maps seems rather too brief. The attractive fly-leaf maps could have been more functional. Greater emphasis of air masses and less retention of planetary wind concepts might have been preferable in climatic discussions. A four-fold climatic division, with the subtropics apart from the middle latitudes, might have been desired. Introducton of an additional major landform, hilly country, is questioned, since most geographers recognize four major types. In lieu of the lack of climatic charts, a table of climatic stations in an appendix would have been welcomed.

The merits of the book far outweigh any minor criticism. While *World Geography* may not be the ideal long-awaited introductory text, it seems to represent a long, long skip down the right path.

Los Angeles City College David W. Lantis

Sir John Hunt. **The Conquest of Everest** with a chapter on the final assault by Sir Edmund Hillary, foreword by H. R. H. the Duke of Edinburgh. E. P. Dutton & Company, Inc., New York, 1954. 300 pages, 48 photographs, index. $6.00.

The conquest of Everest describes the latest and only successful attempt to climb Mt. Everest, the highest peak in the world. It is a technical description of the preparations and assault and reads like a commanders report of a successful military campaign. Strategy, tactics and logistics are carefully described. It is not the study of the Everest area which a geographer might like to have seen. Hunt and his colleagues are mountaineers. All else is subordinate to their chief aim of getting to the top. They accept Mallory's philosophy of climbing; they did it because Everest as all other mountains "was there."

We can admire their strength of purpose and the underlying exploratory urge; geographers too feel the need to explore but not solely to get to the top. We may therefore take more than a passing interest in the incidental data and fascinating glimpses of a world most of us are physically incapable of investigating for ourselves.

The hazards of the ice fall where the Khumbu glacier tumbles over the buried lip of the Western Cwm or cirque are breathtakingly described. The speed of the ice movement and the consequent changes in the location and dimensions of the crevasses presented one of the most formidable physical barriers in the climb. The back wall of the Cwm-Lhotse Face with its Bergschrund, the arete of the South Col and the final Horn are described not as a physical geographer might do in the calm of his well warmed study but as these obstacles felt to men suffering great hardship from bitter cold and encumbered by climbing equipment and life-saving oxygen apparatus.

The physical environment was the chief obstacle, and climate played its part too, if only in a negative sense. The two occasions in the year when it is possible to climb Everest occur when the change between SW monsoon and NW cold dry winds takes place. At all other times strong winds and extreme cold or strong winds and snow prevent any climbing at such high elevations. The lull between the two prevailing winds affords the opportunity required. The spring lull is more certain than the fall one, but even so in some years the change between the SW and NW winds has been abrupt and there have been no climbing weeks at all. In 1953 it lasted sufficiently long for the climb to be made. Forecasts of the weather were radioed by All India Radio and the British BBC, especially for the expedition.

A climbers' book it is but who amongst us can fail to thrill to the achievement of such a climb in such a fascinating terrain? Geographers need some of this enthusiasm to explore not necessarily in the ends of the earth but if need be in their own back yards.

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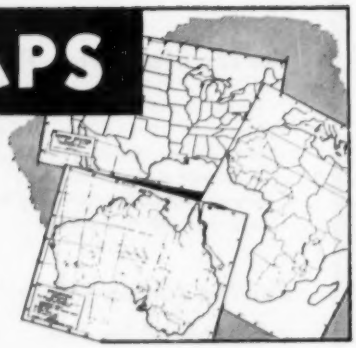

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EDITORIAL NOTES AND NEWS

The 28th annual meeting of the New England Geographical Conference was held on October 30 at Yale University, New Haven, Connecticut. Ninety-nine attended the full day of lectures and field trip which had been planned on the theme of Transportation by the Yale Department of Geography.

The group assembled at Yale in the morning for three lectures on various aspects of transportation problems. Rail, water and air experts analyzed the effects of geography upon the development of their method of transportation. Several of these talks were illustrated by slides.

At the business meeting presided over by Trevor Lloyd of Dartmouth College, the following officers were elected for 1954-1955: President, Herold Wiens, Yale University; Vice-President, S. van Valkenburg, Clark University and Secretary-Treasurer, Minnie Lemaire, Mount Holyoke College.

State Vice-Presidents are: Connecticut, Pauline Schwartz, New Haven State Teachers College; Maine, Myron Starbird, Farmington State Teachers College; Massachusetts, Elizabeth Eiselen, Wellesley College; New Hampshire, Ella O. Keene, Keene State Teachers College; Vermont, Florence Woodward, University of Vermont; Rhode Island, Roy S. Poulsen, University of Rhode Island and Canada, J. Bryan Bird, McGill University.

At the same meeting it was voted unanimously to change the name of the New England Geographical Conference to the New England-St. Lawrence Valley Geographical Conference.

In the afternoon the entire group toured the Cedar Hill Freight Terminal as guests of the New York, New Haven and Hartford Railroad Company. The special coach transported the group around the largest privately owned freight yard east of the Mississippi River. A guide explained the operation of the various sections included on the itinerary, such as the classification yards and the creosoting plant.

Santa Claus was very kind. He brought me a *Webster's Geographical Dictionary* from G. & C. Merriam Co., Springfield 2, Massachusetts. Apparently Santa saw the advertisement in the February, 1954 issue of the JOURNAL OF GEOGRAPHY.

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EDITORIAL NOTES AND NEWS

Dean Neville V. Scarfe, Chairman, and Dr. Thomas F. Barton, Secretary, of the International Geographical Commission in the Teaching of Geography considered work of the Commission in Winnipeg, Manitoba on December 2-5. While in Winnipeg Dr. Barton gave four lectures. His public lecture "Atomic Energy and the Ohio River" was delivered in the Legislative Building before the Manitoba Geographical Society. An illustrated lecture on "Ecological Control of Soil Erosion in the Upper Mississippi Valley" was attended by students and faculty from the various colleges and departments on the University of Manitoba campus. Before Dean Scarfe's on-campus Education class, Dr. Barton spoke on "Some Guideposts in Teaching Geography to Children in Grades Three and Four." His fourth lecture on "Improving the Instruction of Geography" was made on Saturday to Dean Scarfe's "down-town" Education class consisting of in-service teachers.

The number of chapters of the national fraternity of Gamma Theta Upsilon continues to grow. The last four chapters to be established are: Beta Gamma, Western Illinois State College, Macomb; Beta Delta, State Teachers College, Towson, Maryland; Beta Epsilon, Southern University, Baton Rouge, Louisiana and Beta Zeta, Ohio State University, Columbus.

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GEOGRAPHICAL MATERIALS RECEIVED

L. Dudley Stamp. **A Regional Geography, Part V Europe and the Mediterranean.** The University Geographical Series. Longmans, Green and Co., Inc., New York, 1954. viii and 336 pages with maps, illustrations and index. $3.75.

Kathleen Monypenny. **The Young Traveler in Australia.** E. P. Dutton and Co., New York, 1954. 223 pages with illustrations, maps and index. $3.00.

L. Dudley Stamp and Stanley H. Beaver. **The British Isles: A Geographic and Economic Survey,** Fourth Edition. Longmans, Green and Co., Inc., New York, 1954. x and 780 pages with maps, diagrams, illustrations and index. $6.00.

World Cartography, Volume II, 1952. United Nations, New York, 1953. iii and 111 pages with maps and bibliography. $1.25.

L. Dudley Stamp and S. Carter Gilmour. **Chisholm's Handbook of Commercial Geography,** 14th Edition completely rewritten. Longmans, Green and Co., Inc., New York, 1954. xiii and 915 pages with maps and diagrams, appendix and index. $12.75.

Ian Finlay. **The Young Traveler in Scotland.** E. P. Dutton and Co., New York, 1954. 224 pages with photographs and map. $3.00.

Hammond's **Ambassador World Atlas.** C. S. Hammond and Co., New Jersey, 1954. 416 pages with index. $12.50.

Arthur Scholes. **Seventh Continent.** The British Book Centre, New York, 1954. 226 pages with photographs, maps, appendices and index. $4.50.

Hawaii, U.S.A. Series. Six filmstrips on the Hawaiian Islands, in color. Photographs and text by Kani Evans. Each strip accompanied by **A Teacher's Guide.** The Filmstrip House, 15 West 46th Street, New York 36.

Philippe Taillieu. **To Hidden Depths.** E. P. Dutton and Co., Inc., New York, 1954. 188 pages with 12 pages of photographs in full color, 32 in black and white, maps and charts. $5.00.

Miguel Covarrubias. **The Eagle, The Jaguar, and the Serpent: Indian Art of the Americas.** Alfred Knopf, New York, 1954. xxix and 314 pages with photographs, drawings, bibliography and index. $15.00.

William Wilson. **The Microphysical World.** Philosophical Library, New York, 1954. vii and 216 pages with appendix, index and diagrams. $3.75.

Irving P. Krick and Roscoe Fleming. **Sun, Sea and Sky: Weather in our World and**

in our Lives. J. B. Lippincott Co., New York, 1954. 248 pages with 17 photographs, 28 line drawings, 7 weather maps and index. $3.95.

Joseph E. Spencer. **Asia East by South, A Cultural Geography.** John Wiley and Sons, Inc., New York, 1954. x and 453 pages with bibliography, index, maps and diagrams. $8.50.

Ruby M. Harris. Middle America Series of four filmstrips: **Farmers of Mexico** (60 frames), **City People of Mexico** (60 frames), **Lands and Peoples in Central America** (60 frames) and **Island People of Middle America** (50 frames). Society for Visual Education, Chicago, Illinois. Series $19.00, each filmstrip $6.00.

Leonard S. Kenworthy. **Brazil.** Holiday House, New York, 1954. 28 pages with illustrations by Rafaello Busoni. $1.25.

J. T. Hooper and C. A. Burland. **The Art of Primitive Peoples.** Philosophical Library, New York, 1954. 168 pages with 116 photographs by R. H. Bomback, maps and index. $7.50.

Ed Kilman and Theon Wright. **Hugh Roy Cullen: A Story of American Opportunity.** Prentice-Hall, Inc., New York, 1954. viii and 376 pages with illustrations and index. $4.00.

Mabelle Clark Snead. **The Territorial Possession of the United States.** Vantage Press, Inc., New York, 1954. 55 pages with maps and illustrations by Rodman E. Snead and references. $2.00.

Stephen S. Visher. **Climatic Atlas of the United States.** Harvard University Press, Cambridge, Massachusetts, 1954. xii and 403 pages with maps, references, sources and index. $9.00.

Robert S. Richardson. **Exploring Mars.** McGraw-Hill Book Co., Inc., New York, 1955. 260 pages with illustrations and index. $4.00.

George H. T. Kimble. **Our American Weather.** McGraw-Hill Book Co., Inc., New York, 1955. 322 pages with illustrations and tables. $4.75.

William Van Royen. **Atlas of World Resources Volume I, The Agricultural Resources of the World.** Prentice-Hall, Inc., New York, 1954. 228 pages. $13.35.

G. V. Jacks. **Soil.** Philosophical Library, New York, 1954. 221 pages with illustrations and index. $5.00.

Henryk Paszkiewicz. **The Origin of Russia.** Philosophical Library, New York, 1954. xii and 556 pages with genealogical tables, bibliography and index. $10.00.

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